

## **CLAIMS**

1. An electrical grounding assembly for a control valve comprising:  
2 a valve body;  
a valve trim electrically isolated from the valve body; and  
4 an elastic grounding connector having in combination an elastic region and an  
electrically conductive surface compressed between the valve body and the valve trim  
6 to form and maintain an internal electrical contact between the valve body and valve  
trim.
2. The electrical grounding assembly of claim 1, wherein the valve body  
2 has a bore adjacent to the valve trim for receiving the elastic grounding connector.
- 2 3. The elastic grounding connector assembly of claim 1, wherein the  
elastic grounding connector is comprised of deformable stranded metal.
4. The elastic grounding connector assembly of claim 3, wherein the  
2 deformable stranded metal is generally formed as a ball.
5. The elastic grounding connector assembly of claim 1, wherein the  
2 elastic grounding connector is comprised of a conical spring.
6. The elastic grounding connector assembly of claim 4, wherein the  
2 elastic grounding connector includes a bias spring such that the bias spring places the  
deformable stranded metal ball in continuous contact with the valve trim and the  
4 valve body.

7. A method to substantially reduce the electric potential across a control  
2 valve assembly wherein the control valve assembly comprises at least a valve body  
and a valve trim, the valve trim being electrically isolated from the valve body, the  
4 method comprising:  
providing an elastic conductive grounding connector;  
6 forming the valve trim from at least a valve shaft and a control element, the  
valve shaft having an outboard end;  
8 forming the valve body with a bore sized to receive the elastic conductive  
grounding connector and the outboard end of valve shaft;  
10 filling the bore with the elastic grounding connector; and  
placing the valve trim within the valve body with the outboard end of the  
12 valve shaft in the valve body bore so that the outboard end of the valve shaft  
compresses the elastic conductive grounding connector thereby forming a shared  
14 electrical connection between the valve body and the valve trim.

8. The method of claim 7, wherein the elastic grounding connector is  
2 comprised of a deformable stranded metal.

9. The method of claim 8, wherein the deformable stranded metal is  
2 generally formed as a ball.

10. The elastic grounding connector assembly of claim 7, wherein the  
2 elastic grounding connector is comprised of a conical spring.

11. The elastic grounding connector assembly of claim 9, wherein the  
2 elastic grounding connector includes bias spring such that the bias spring places the  
deformable stranded metal ball in continuous contact with the valve trim and the  
4 valve body.